CHAPTER 3

Core Watershed Management Activities

In This Chapter...

- ***Strategic Data Collection, Monitoring, and Assessment***
- ***Setting Priorities and Developing Management Strategies***
- ***Action Plan Implementation***

This chapter builds on the Kentucky Watershed Framework components outlined in Chapter 2 by describing the specific management activities carried out during implementation of the basin management cycle in each basin management unit. Timing of activities and specific roles are detailed for the River Basin Teams, Local Watershed Task Forces, Partner Network, Basin Coordinators, and Public Information Coordinators. An activity reference guide summarizing key activities, end products and outcomes, responsible parties, and timing within the cycle in a step-by-step matrix format is provided in Appendix E.

Strategic Data Collection, Monitoring, and Assessment

As described in Chapter 2, watershed management decisions are based on reviews of historical data and new information collected through strategic monitoring and assessment efforts. The term *strategic* refers to efforts that

Strategic data collection, monitoring, and assessment constitute key activities as the Watershed Management Framework is initiated in each basin management unit.

These activities provide information that partners can use to set priorities and make management decisions.

During the first few months of the basin management cycle, technical experts and the public are brought together to identify the most pressing concerns in each basin.

The River Basin Team prepares the Basin Status Report.

The Partner Network distributes the draft Basin Status Report to diverse audiences throughout each basin management unit.

Stakeholders are encouraged to become involved in the Watershed Management Framework.

are targeted to make best use of limited resources. A number of programs and agencies in Kentucky are already collecting information relevant to watershed management. The inventory of Kentucky monitoring and assessment activities in Appendix F provides a summary of these previous and ongoing data collection efforts. It will be challenging to compile all the information needed for a basinwide assessment because of the large number of agencies and programs involved in data collection and the range of data management and assessment tools used in the state. Communication among partners and with the stakeholders in each basin is essential to this task. Several activities to support strategic data collection, monitoring, and assessment are planned under the Kentucky Watershed Framework.

Scoping and Data Gathering (Phase 1)

Compiling Relevant Data and Information

During the first few months of the basin management cycle, technical experts and the public are brought together to identify the most important concerns in each basin. This is referred to as a scoping process: it represents the first phase of the basin management cycle. Data on the basin are needed to (1) prepare the Basin Status Report and (2) provide the background information partners need to rank watersheds in order of priority. Additional data collected during this phase will further support the watershed ranking process and the development of strategies for solving the most urgent problems in priority watersheds. Important data related to watershed resources are currently collected by the Kentucky DEP in order to meet the reporting requirements under Sections 305(b) (a report to Congress on the condition of waters within the state) and 303(d) (a list of impaired waters requiring development of total maximum daily loads for problem pollutants) of the Clean Water Act. Additional data are collected by other programs and agencies, including the Kentucky Department of Fish and Wildlife Resources, Kentucky and U.S. Geological Surveys, and regional programs, including the Louisville-Jefferson County Metropolitan Sewer District, the Tennessee Valley Authority, and the U.S. Army Corps of Engineers (Appendix F).

Month 1 of the basin management cycle is largely spent organizing and orienting the River Basin Team and clarifying monitoring and assessment objectives and activities planned for the early phases of the cycle. During months 1 and 2 of the cycle, River Basin Team members assigned to a Monitoring and Assessment Workgroup will compile readily available data and prepare a Basin Status Report (see Figure 3-1). The Status Report is intended to communicate conditions and trends in water quality and quantity and watershed integrity to a broad audience, and to support the River Basin Team's determination of priorities for strategic monitoring.

The draft Basin Status Report will be communicated to the public during months 3 and 4, using the Framework's Partner Network. The Public Information Coordinator will act as a liaison between the River Basin Team and the Partner Network to ensure that the issues and concerns described in the Basin Status Report are understandable and accurately portrayed. A survey designed by a Public Participation Workgroup of the River Basin

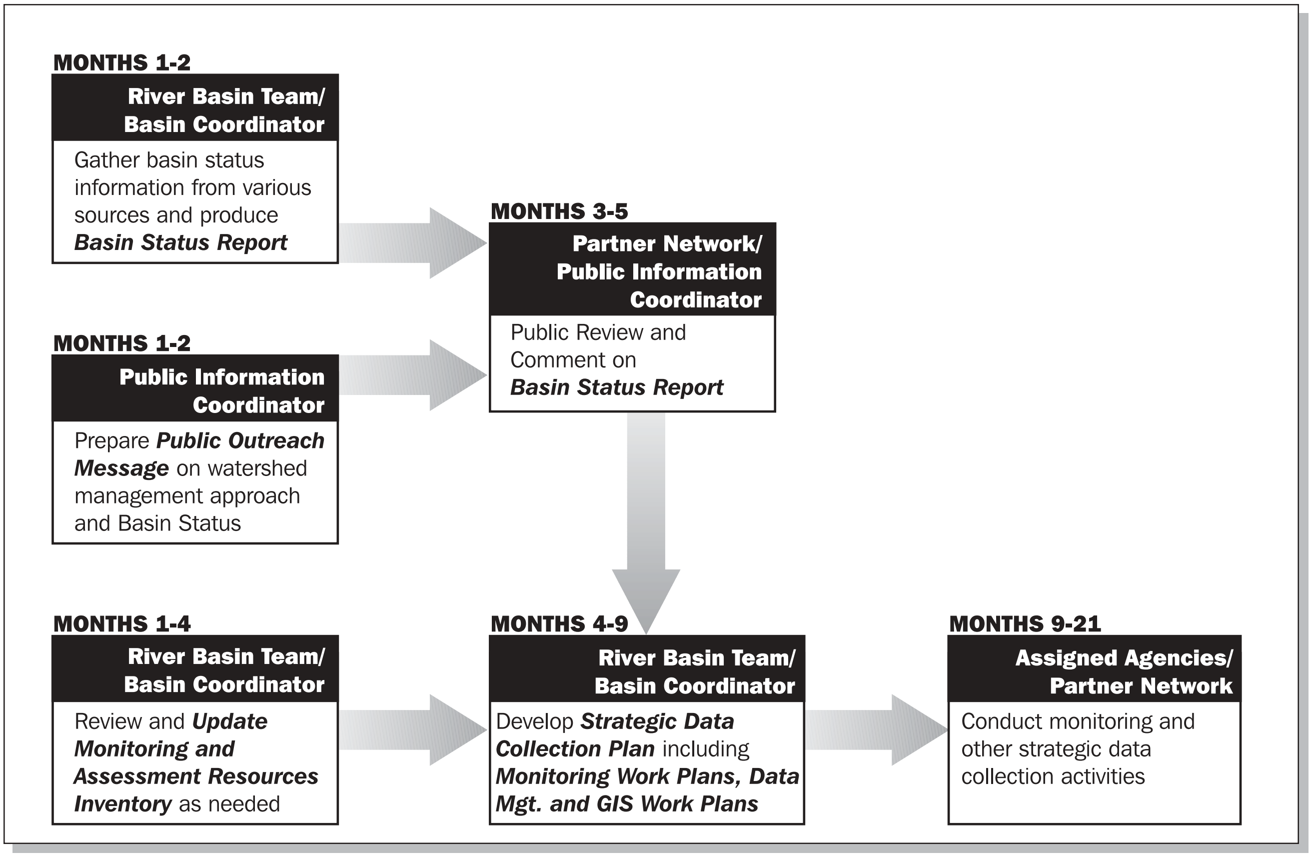

Figure 3-1. Phase 1: Scoping and Data Gathering.

Team will accompany the Basin Status Report to elicit the public's perceptions of conditions within the basin and problems that warrant attention. The Public Information Coordinator will see that survey responses obtained through the Partner Network are returned to the River Basin Team for incorporation into plans developed during later phases of the management cycle.

Using the Basin Status Report and readily available data, partners begin to identify gaps in information that need to be filled.

Designing and Implementing a Monitoring Work Plan

Also during the scoping and data gathering phase of the basin management cycle, partners will begin developing Monitoring Work Plans (part of the Strategic Data Collection Plan) by clarifying monitoring objectives during month 1. The Monitoring Work Plans will detail sampling designs, partner roles, and monitoring schedules. Most efforts by the Monitoring and Assessment Workgroup to design and document the Monitoring Work Plans, however, will occur during months 4 through 6 of the basin management cycle. Draft Monitoring Work Plans will be distributed by the Basin Coordinator for comment and refined during months 7 to 9.

As part of an overall Strategic Data Collection Plan, Monitoring Work Plans are written to provide detailed information about sampling design, partner roles, and monitoring schedules.

Months 9 to 21 will be spent implementing the Monitoring Work Plans. Physical, chemical, biological, and hydrologic data will be collected according to the Work Plans. These data will be augmented by ongoing monitoring activities throughout the basin (e.g., habitat analyses, reference reach monitoring, ambient surface water and groundwater monitoring). The Monitoring and Assessment Workgroup will work with the Basin Coordinator to see that monitoring activities stay on track.

Standard monitoring protocols and guidance are needed to ensure consistent data collection, assessment, and management. Separate guidance is being developed by a Technical Workgroup which is part of the Kentucky Watershed Framework Development Workgroup (see Chapter 4). The guidance will, in turn, be adopted and implemented through the River Basin Teams.

Assessment (Phase 2)

Integrating Assessment Components

Partners within the Kentucky Watershed Framework possess a broad range of assessment capabilities (Appendix F). Depending on the issues of concern within the basin, the agencies conducting relevant assessment activities will be identified.

Sample Analysis and Data Entry Work Plans specify roles, responsibilities, and schedules for analyzing and managing data collected under Monitoring Work Plans.

During months 6 to 9 of the basin management cycle, the Basin Coordinator and River Basin Team will develop Sample Analysis and Data Entry Work Plans assigning roles, responsibilities, and schedules for sample analysis and data management that correspond to the Monitoring Work Plans (Figure 3-2). Months 9 through 24 are reserved for carrying out Work Plans.

During months 15 to 18 of the cycle, the Basin Coordinator, with assistance from the River Basin Team, develops Assessment Work Plans for evaluation and analysis of the compiled data. Partner roles, responsibilities, and schedules are detailed such that assessment activities are coordinated efficiently and effectively from months 18 to 27.

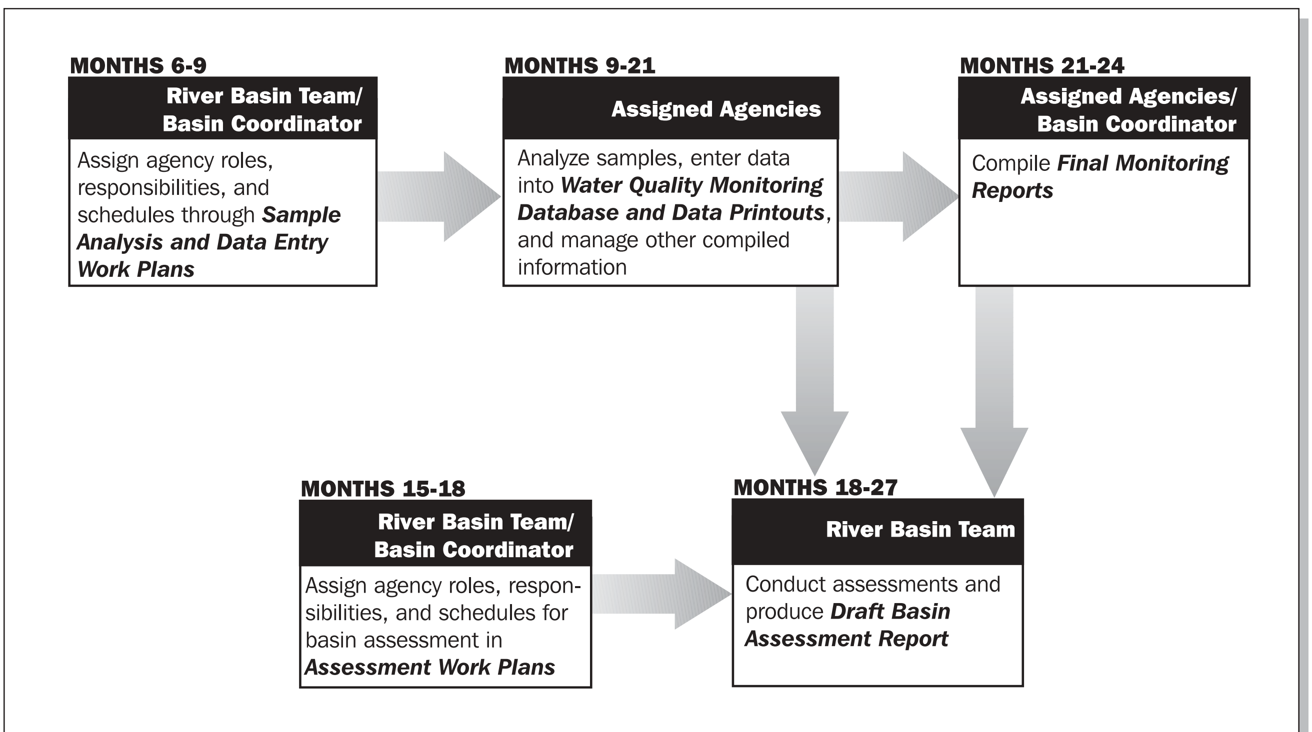

Figure 3-2. Phase 2: Assessment.

The result of the implementation of the Monitoring, Sample Analysis and Data Entry, and Assessment Work Plans is the production of final reports on monitoring results. These Final Monitoring Reports are interim reports that are used by the River Basin Team to prepare a draft Basin Assessment Report.

The outcome of monitoring, sample analysis and data entry, and assessment activities is preparation of Final Monitoring Reports that are used to produce a draft Basin Assessment Report.

Managing Information

Kentucky is supporting several programs to promote consistent data management practices in the state and to support the application of metadata objectives across programs. (Metadata include information about data, such as period represented, techniques used to generate the data, and quality assurance measures applied to data.) The DEP is developing a "data warehouse" to manage information collected as part of its field collection and assessment efforts. This warehouse will support greater information exchange and needs. This database will be linked to the ongoing geographic information system (GIS) development activities within the state. In addition, DEP is developing modeling tools and will support work on the statewide data dictionary and GIS/modeling integration.

A data warehouse is being developed that can be linked to geographic information systems and modeling tools.

Setting Priorities and Developing Management Strategies

Prioritization and Targeting (Phase 3)

Ranking Watersheds by Priority

The Kentucky Watershed Framework supports a process for identifying watershed priorities. The purpose of the process is to (1) efficiently achieve consensus on the most pressing watershed concerns (balancing restoration and protection goals) in the basin management unit (prioritization) and then (2) determine where efforts can be directed most cost-effectively (targeting). This process takes place during the third year of the five-year basin management cycle, beginning in month 25.

The River Basin Team works with stakeholders to establish a priority ranking of watersheds within the basin.

Priority setting follows the assessment activities in phase 2 of the basin management cycle. In the first part of the prioritization process, technical information from the Final Monitoring Reports and draft Basin Assessment Report is entered into a numeric indexing formula by the River Basin Team (see Figure 3-3). The index uses technical information to produce a relative ranking for each 11-digit HUC (watershed) within the basin (see Chapter 2 for a discussion of HUCs). This represents a preliminary ranking of watershed priorities to be presented for public consideration.

With the help of the Public Information Coordinator for the basin management unit, the River Basin Team distributes the preliminary ranking through the Partner Network for public review and comment during months 28 to 30. Key contacts within the Partner Network will help compile comments for their constituencies and return them to the River Basin Team for review and consideration. If specific concerns are preventing consensus

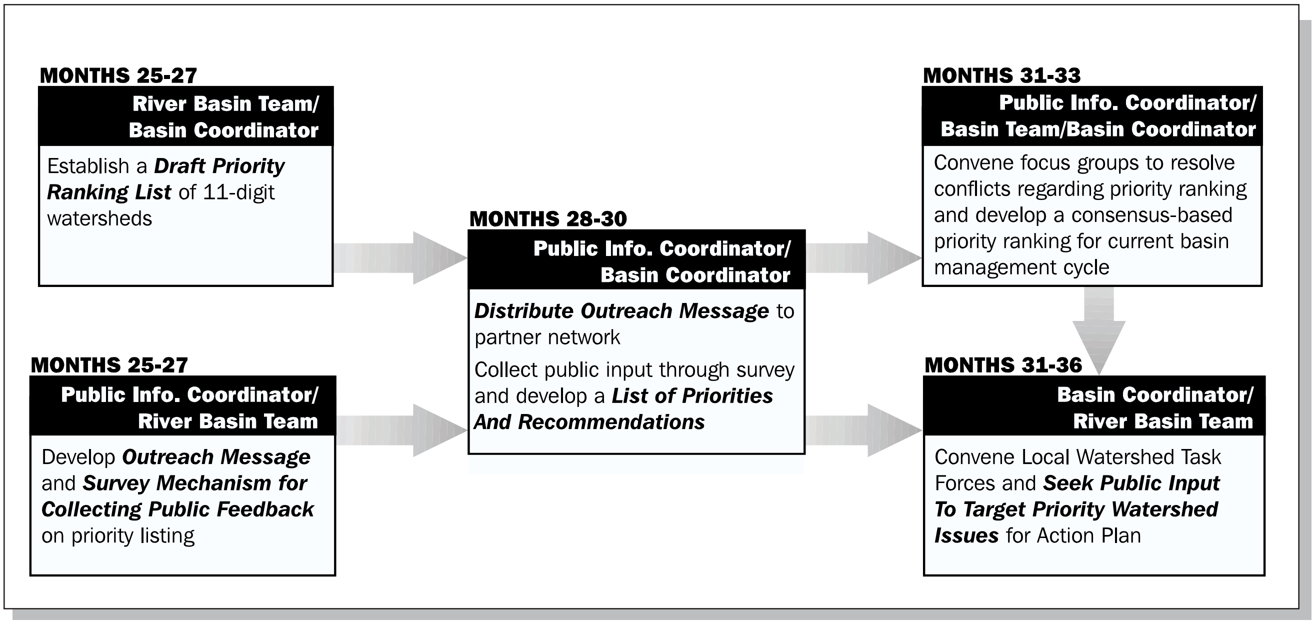

Figure 3-3. Phase 3: Prioritization and Targeting.

Watersheds in which the most urgent problems have been documented are ranked as the highest priorities for action.

The draft ranking is shared with stakeholders and revised to incorporate their input.

Local Watershed Task Forces and the River Basin Team decide where to allocate limited resources within priority watersheds so that efforts and funds are directed where they are most effective.

on watershed priorities, the River Basin Team can conduct focused discussions with relevant participants to resolve the issues and achieve a ranking supported by basin stakeholders by month 33.

Targeting Resources to Priority Watershed Problems

Once stakeholders have agreed on a ranking of watersheds in order of priority, partners on the River Basin Team will apply targeting criteria to determine where collaborative efforts should be directed. The targeting process should be completed by month 36 of the cycle.

Practical considerations typically influence where participants are willing to put forth (target) significant effort. Factors to consider generally fall under two categories: the probability of success and cost-effectiveness. In relation to probability of success, specific criteria include:

- ***Technical feasibility***: What is the level of certainty that the problems can be solved?
- ***Political feasibility***: Is there sufficient local support and interest to solve the problems?
- ***Economic feasibility***: Are the necessary funds available to solve the problems?

In evaluating cost-effectiveness, partners are interested in knowing where their time and funds will do the most good. For example, it might be very expensive to address problems in one priority watershed, while the same level of investment might solve problems in several other priority watersheds. Information on cost-effectiveness can help guide partners in making these difficult choices.

Good information for targeting might not always be readily available. Nonetheless, River Basin Teams can make a first attempt at targeting based on the interaction with other partners and the public that has occurred up until this point in the basin management cycle (phases 1 to 3). Working with parties who have been active in earlier phases could help to clarify projections of feasibility or cost-effectiveness. Additionally, these contacts might lead directly to the formation of Local Watershed Task Forces to support the next phase of watershed management.

Action Plan Development (Phase 4)

Action Plans for Priority Watersheds

Solutions to many of the problems in priority watersheds will undoubtedly require the efforts of many stakeholders. Partners can use the Kentucky Watershed Management Framework to plan how their actions can be integrated to achieve management goals. The first step in developing integrated management strategies is to establish an effective local forum for planning. These local forums are called Local Watershed Task Forces. Ideally they already exist in some form or will establish themselves during the targeting phase as logical extensions of public involvement in the previous phases of the basin management cycle. Representatives from a cross section of interests and existing forums will be recruited by the River Basin Team and Statewide Steering Committee to serve on the Task Forces.

For each priority watershed, the Local Watershed Task Force develops an Action Plan outlining specific activities to be carried out to address problems.

It is anticipated that Local Task Forces will eventually be able to sustain themselves. However, early efforts may require substantial input and guidance from the Basin Coordinator. Additionally, circumstances might arise where Local Task Forces would benefit from the skill and experience of River Basin Team members (e.g., in developing tools to evaluate management options). Working relationships will evolve as the new approach is phased in, and differences are likely to exist among basin management units because of the unique circumstances of each unit. Appendix G provides a listing of implementation tools for consideration when developing Action Plans.

Solutions to problems in priority watersheds often require efforts by many stakeholders. Partners can use the Framework to plan how their actions can be integrated to achieve watershed goals.

With the help of the Basin Coordinator and River Basin Team, Local Watershed Task Forces work during months 37 to 42 to develop draft Action Plans for their particular priority watershed. Each Action Plan contains specific management goals and objectives, discussion of alternative management options, and preferred approaches to solving watershed problems. Each draft Watershed Action Plan will be distributed for public comment and revised accordingly.

Basin Management Plans

During year 4 (months 37 to 48), the River Basin Team and Local Watershed Task Forces will pull together all the information about the basin and draft an overall Basin Management Plan, which will include specific Action Plans for targeted priority watersheds. A Basin Management Plan is a written plan that documents Watershed Management Framework activities in a particular basin management unit over a five-year period. The purpose of the Basin Management Plan is to provide a common reference guide for

The River Basin Team and the Local Watershed Task Forces work together during the fourth year of the basin management cycle to develop an overall Basin Management Plan which contains a specific Action Plan for each targeted priority watershed.

implementation of watershed management activities. The Basin Coordinator will oversee development of the Basin Management Plan by facilitating meetings of the River Basin Team, compiling Team output, and working as a liaison with the Local Watershed Task Forces to compile their results as well.

The audiences, purpose, and contents of Basin Management Plans were discussed in Chapter 2. This section describes the activities conducted by watershed framework partners to document and adopt Basin Management Plans, scheduled for the fourth year in the basin management cycle.

A Basin Management Plan has three primary components:

- User's Guide
- Basin Summary
- Watershed Summaries and an accompanying Action Plan for each priority watershed

User's Guide

The User's Guide will provide an overview of the watershed management approach and state the purpose and organization of the Plan. Once developed, the user's guide is expected to contain "boilerplate" information that will be applicable to and that can be included in the User's Guide section of each of the 11 Basin Management Plans throughout the state.

The Basin Summary and Watershed Summaries, however, will require substantial effort to tailor and update the Plans to the specifics of a given basin management unit. Some parts of the Basin and Watershed Summaries, especially geology and number and size of watersheds, will not change from year to year. Other components will require substantial revision with each item of the basin management cycle.

Basin Summary

The Basin Summary, as currently designed, has four sections:

- Description of the basin management unit's physical and cultural features and an assessment of their conditions
- Overview of issues and concerns throughout the basin management unit
- Brief summary of priority watersheds and Action Plans
- Brief discussion of future issues and challenges

The River Basin Team and Basin Coordinator work together to compile the Basin Summary.

Content for these sections will be generated primarily through activities of the River Basin Team and Local Watershed Task Forces occurring throughout the basin management cycle. For example, most of the basin management unit description will be developed during the initial scoping phase when the River Basin Team prepares a Basin Status Report to support public participation in the Framework process and identification of primary concerns in the basin. Refinement of basin features and condition descriptions is likely to occur following the River Basin Team's completion of the assessment phase. A preliminary ranking of priority watersheds will be drafted by the River Basin Team in phase 3 of the management cycle, and Action Plans for priority watersheds will be generated by the joint efforts of the Local Watershed Task Forces and River Basin Team in phase 4. Future issues and challenges will likely come from both the Task Forces and the River Basin Team, based on dialogue and planning efforts during phases 3 and 4 of the basin management cycle. The Basin Coordinator will oversee compilation of the various sections and subsections of text into a complete draft Basin Summary for review by month 42 and final adoption by month 48 (see Figure 3-4).

Watershed Summaries

The Watershed Summaries will follow the Basin Summary portion of the Basin Management Plan and will provide watershed-level information. Watershed Summaries are expected to include four sections:

- Brief "watershed-at-a-glance" overview
- More thorough description of physical and cultural features and their condition
- Summary of issues and priorities
- Detailed Action Plan for each priority watershed

Local Watershed Task Forces will take the lead in compiling information available only at the local level. This information is likely to include descriptions of ongoing management initiatives and watershed protection measures, locally defined management goals and objectives, and technically and politically feasible management options that can be implemented at the local level. The Action Plans should include milestones, which are specific objectives to achieve within a certain time frame.

Local Watershed Task Forces lead development of Watershed Summaries and Action Plans.

The Basin Coordinator can help compile Action Plans into the Watershed Summaries, and act as a liaison between the Task Forces and Basin Team. The Public Information Coordinator can provide guidance on effective communication of Action Plans and act as a liaison with the Partner Network that will distribute and refine the Action Plans. These activities are performed in year 4 (months 37 to 48) and generally follow the same schedule as that outlined above for the Basin Summary.

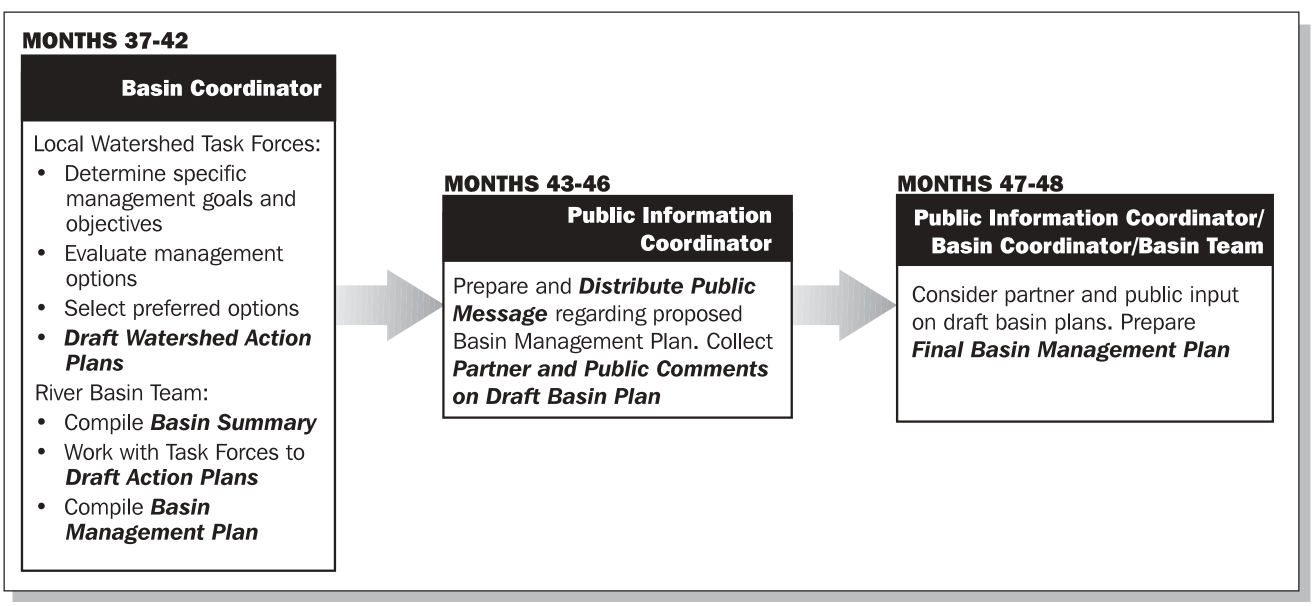

Figure 3-4. Phase 4: Plan Development.

Reviewing Basin Management Plans

The Public Information Coordinator will work with the River Basin Team, Local Watershed Task Forces, and Basin Coordinator to ensure that the Basin Management Plan communicates effectively with its intended audiences. The Public Information Coordinator's responsibilities include offering guidance prior to development of sections by Framework partners and helping to edit the draft Plan before it is distributed for public comment. Additionally, the Public Information Coordinator can act as a liaison between the River Basin Team and Local Watershed Task Forces and key contacts within the Partner Network. The Partner Network will be used to help distribute the draft Plan and gather comments during months 43 to 47. Responses from stakeholders will be considered by the authors as they finalize the Basin Management Plan during months 47 to 48.

The Public Information Coordinator involves stakeholders and the public in reviewing the Basin Management Plan.

Action Plan Implementation (Phase 5)

Year 5 (months 49 to 60) of the basin management cycle is devoted to implementation of the priority watershed Action Plans. Although implementation will go on past this one year of activity, extra emphasis is placed on implementation during this period to ensure efforts get off to a good start. Success is dependent on partners remaining committed to the Action Plans, and helping to ensure that others know how they can contribute to achieving agreed-upon goals and objectives. Several activities considered critical during this focused implementation period are described below (see also Figure 3-5).

During year 5 of the basin cycle, partners implement Action Plans in priority watersheds.

Outreach

It is important that partners and the general public know and understand the goals of the Action Plans, and how they can participate in implementing the Plans. The Public Information Coordinator will be responsible for outreach, working closely with the River Basin Team, Local Watershed Task Forces, Basin Coordinator, and Partner Network to prepare informative materials that communicate this message effectively.

Carrying Out Action Plans

Kentucky's Watershed Management Framework coordinates the activities of partner organizations to achieve effective watershed management and protection. As a result, rather than creating new bureaucracies to implement the program, the watershed management approach must be adopted as part of the mission and day-to-day activities of the agencies and organizations that have participated in developing this Framework Document. The priority watershed Action Plan milestones will be translated into partner work plans. As a result, it is the responsibility of each participant to ensure that those tasks included in their work plans are implemented. As described below, tracking the success of these implementation activities will be the responsibility of the Basin Coordinators, working cooperatively with the partner organizations.

The Public Information Coordinator plays a key role by clearly and effectively articulating the Framework message to the public.

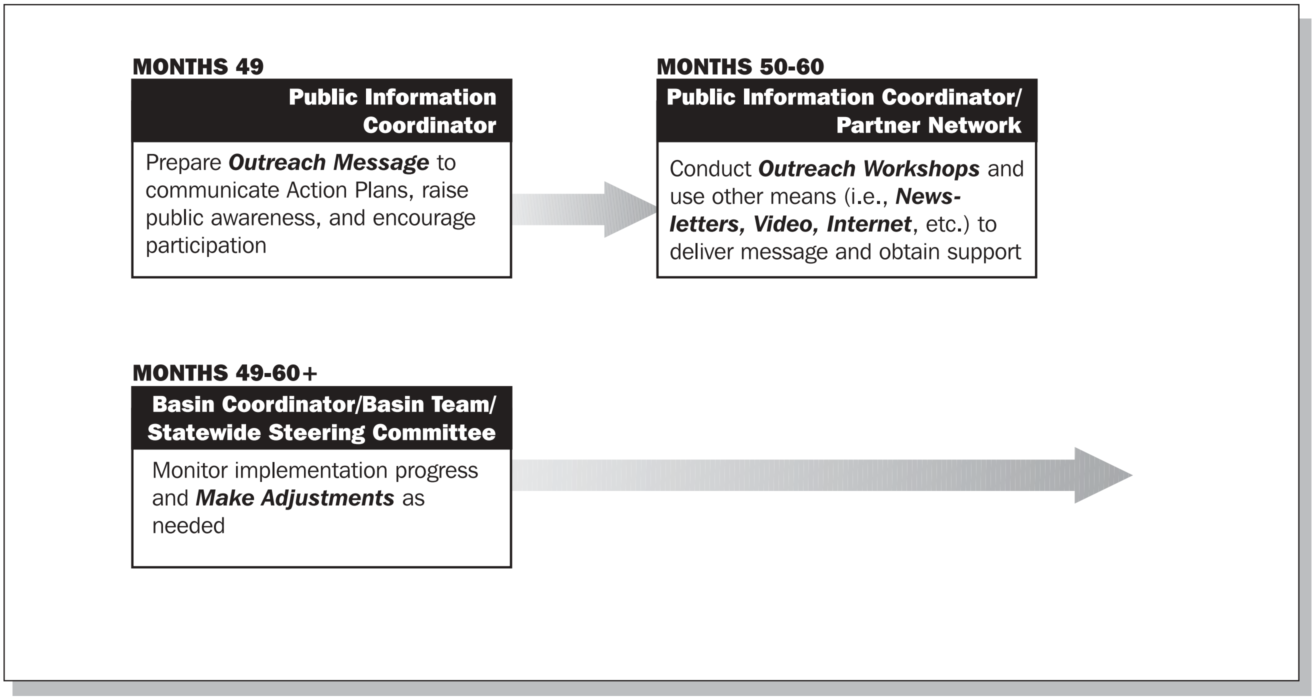

Figure 3-5. Phase 5: Implementation.

Monitoring Progress and Evaluating Success

The success of Kentucky's watershed management approach will ultimately be measured in terms of improvements in water quality and habitat, and restoration of watershed functions. Indicators of such improvements in water quality and watershed function will be incorporated into strategic Monitoring Plan Guidance (being developed as a separate document, see Chapter 4). By measuring improvements in this way, Kentucky will be able to build a database that will allow the state to track improvements in watershed resources statewide.

Rather than creating new bureaucracies to implement Action Plans, the watershed management approach must be adopted as part of partners' day-to-day activities.

In the near term, however, the effectiveness of the Watershed Management Framework will be measured in terms of the achievement of critical milestones described in the priority watershed Action Plans. It will be the responsibility of the Basin Coordinator to track achievement of the critical milestones and identify the need for additional resources from or renewed efforts by partners. By carefully tracking progress from Action Plan milestones to partner Work Plan commitments to achievement in the field, the Basin Coordinator will be responsible for assessing the status of watershed management implementation.

Efforts outlined in Action Plans are translated into partner Work Plans.

If the Basin Coordinator, working with the River Basin Team, identifies a need for additional support to achieve a critical Action Plan milestone, the Statewide Steering Committee will serve as a forum for responding to those needs. The Basin Coordinator will be responsible for anticipating and clearly identifying additional resources needed, communicating those needs to the Steering Committee, and making sure that additional resources committed by

The effectiveness of the Kentucky Watershed Management Framework will be measured by the achievement of specific actions to address the most pressing watershed problems in each basin management unit.

the members of the Steering Committee are implemented. If additional support is not available, the Basin Coordinator will document the shortfall in achieving the Action Plan milestone so that future planning activities within the basin and in other basins can anticipate and account for the shortfall.